



#6

SEQUENCE LISTING

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Val Lys Leu Thr Pro Lys Glu Gln Glu

aag ttc ttg tta tat tat gcg ggc gaa gtg gct aga aag cgc aaa gca 280
Lys Phe Leu Leu Tyr Tyr Ala Gly Glu Val Ala Arg Lys Arg Lys Ala
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gag ggc tta aag ctc aac caa ccc gaa gcc att gct tac att agt gcc 328
Glu Gly Leu Lys Leu Asn Gln Pro Glu Ala Ile Ala Tyr Ile Ser Ala
30 35 40

cat att atg gac gaa gcg cgc cgt gga aaa aaa acc gtt gcc cag ctt 376
His Ile Met Asp Glu Ala Arg Arg Gly Lys Lys Thr Val Ala Gln Leu
45 50 55

atg gaa gag tgc atg cac ttt ttg aaa aaa gat gaa gta atg ccc ggg 424
Met Glu Glu Cys Met His Phe Leu Lys Lys Asp Glu Val Met Pro Gly
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Val Gly Asn Met Val Pro Asp Leu Gly Val Glu Ala Thr Phe Pro Asp
75 80 85

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Gly Thr Lys Leu Val Thr Val Asn Trp Pro Ile Glu Pro Asp Glu His
90 95 100 105

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Phe Lys Ala Gly Glu Val Lys Phe Gly Cys Asp Lys Asp Ile Glu Leu
110 115 120

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Asn Ala Gly Lys Glu Val Thr Glu Leu Glu Val Thr Asn Glu Gly Pro
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gca cta aaa ttc gat cgt gaa aaa gcc tat ggc aaa cgc cta gat att 712

Ala Leu Lys Phe Asp Arg Glu Lys Ala Tyr Gly Lys Arg Leu Asp Ile
155 160 165

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Pro Ser Gly Asn Thr Leu Arg Ile Gly Ala Gly Gln Thr Arg Lys Val
170 175 180 185

cag ttg att cct ctt ggt ggc agt aaa aaa gtg att ggc atg aac ggg 808
Gln Leu Ile Pro Leu Gly Gly Ser Lys Lys Val Ile Gly Met Asn Gly
190 195 200

ctt gtg aat aac atc gcg gat gaa cgc cat aaa cat aaa gcg ctt gac 856
Leu Val Asn Asn Ile Ala Asp Glu Arg His Lys His Lys Ala Leu Asp
205 210 215

aag gcg aaa tct cac gga ttt atc aag taa ggagactccc atg aaa atg 905
Lys Ala Lys Ser His Gly Phe Ile Lys Met Lys Met
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Val Arg Leu Gly Asp Thr Asp Leu Trp Ala Glu Val Glu His Asp Tyr
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acc acc tat ggc gaa gaa ctt aaa ttt ggc gcg ggt aaa act atc cgt 1049
Thr Thr Tyr Gly Glu Glu Leu Lys Phe Gly Ala Gly Lys Thr Ile Arg
265 270 275

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295 300 305 310

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Asp Ile Gly Ile Lys Asn Gly Lys Ile His Gly Ile Gly Lys Ala Gly			
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Gly Thr Glu Ala Leu Ala Gly Glu Gly Met Ile Ile Thr Ala Gly Gly			
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Ile Asp Ser His Thr His Phe Leu Ser Pro Gln Gln Phe Pro Thr Ala			
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Leu Ala Asn Gly Val Thr Thr Met Phe Gly Gly Thr Gly Pro Val			
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Asp Gly Thr Asn Ala Thr Thr Ile Thr Pro Gly Lys Trp Asn Leu His			
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cgc atg ttg cgc gca gca gaa gag tat tct atg aat gtg ggc ttt ttg			1481
Arg Met Leu Arg Ala Ala Glu Glu Tyr Ser Met Asn Val Gly Phe Leu			
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gcg ggc gcg att ggt ttt aaa ttg cat gaa gac tgg ggc aca aca cca			1577
Ala Gly Ala Ile Gly Phe Lys Leu His Glu Asp Trp Gly Thr Thr Pro			
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Ser Ala Ile Asp His Cys Leu Ser Val Ala Asp Glu Tyr Asp Val Gln
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Val Cys Ile His Thr Asp Thr Val Asn Glu Ala Gly Tyr Val Asp Asp
475 480 485

acc cta aat gca atg aac ggg cgc gcc atc cat gcc tac cac att gag 1721
Thr Leu Asn Ala Met Asn Gly Arg Ala Ile His Ala Tyr His Ile Glu
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Lys Leu Pro Glu Asp Gly Lys Asp Asn Asp Asn Phe Arg Ile Lys Arg
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Glu Tyr Ile Gly Ser Val Glu Glu Gly Lys Ile Ala Asp Leu Val Val
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680 685 690

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695 700 705 710

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Ala Lys Phe Asp Thr Ser Ile Thr Phe Val Ser Lys Val Ala Tyr Glu
715 720 725

aat ggc gtg aaa gaa aag ctg ggc tta gag cgc caa gtt cta ccg gtc 2441
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730 735 740

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745 750 755

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Thr Ala Lys Ile Thr Val Asp Pro Lys Thr Phe Glu Val Phe Val Asp
760 765 770

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Arg Tyr Thr Phe Phe
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Arg Gly Lys Lys Thr Val Ala Gln Leu Met Glu Glu Cys Met His Phe

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Asn Trp Pro Ile Glu Pro Asp Glu His Phe Lys Ala Gly Glu Val Lys
100 105 110

Phe Gly Cys Asp Lys Asp Ile Glu Leu Asn Ala Gly Lys Glu Val Thr
115 120 125

Glu Leu Glu Val Thr Asn Glu Gly Pro Lys Ser Leu His Val Gly Ser
130 135 140

His Phe His Phe Phe Glu Ala Asn Lys Ala Leu Lys Phe Asp Arg Glu
145 150 155 160

Lys Ala Tyr Gly Lys Arg Leu Asp Ile Pro Ser Gly Asn Thr Leu Arg
165 170 175

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180 185 190

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35 40 45

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50 55 60

Leu Asp Leu Val Ile Thr Asn Ala Met Ile Ile Asp Tyr Thr Gly Ile
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Tyr Lys Ala Asp Ile Gly Ile Lys Asn Gly Lys Ile His Gly Ile Gly
85 90 95

Lys Ala Gly Asn Lys Asp Met Gln Asp Gly Val Ser Pro His Met Val
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Val Gly Val Gly Thr Glu Ala Leu Ala Gly Glu Gly Met Ile Ile Thr
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Ala Gly Gly Ile Asp Ser His Thr His Phe Leu Ser Pro Gln Gln Phe
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225 230 235 240
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245 250 255
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260 265 270
His Ile Glu Gly Ala Gly Gly His Ser Pro Asp Val Ile Thr Met
275 280 285
Ala Gly Glu Leu Asn Ile Leu Pro Ser Ser Thr Thr Pro Thr Ile Pro
290 295 300
Tyr Thr Ile Asn Thr Val Ala Glu His Leu Asp Met Leu Met Thr Cys
305 310 315 320
His His Leu Asp Lys Arg Ile Arg Glu Asp Leu Gln Phe Ser Gln Ser
325 330 335
Arg Ile Arg Pro Gly Ser Ile Ala Ala Glu Asp Val Leu His Asp Met
340 345 350
Gly Val Ile Ala Met Thr Ser Ser Asp Ser Gln Ala Met Gly Arg Ala
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Gly Glu Val Ile Pro Arg Thr Trp Gln Thr Ala Asp Lys Asn Lys Lys
370 375 380

Glu Phe Gly Lys Leu Pro Glu Asp Gly Lys Asp Asn Asp Asn Phe Arg
385 390 395 400

Ile Lys Arg Tyr Ile Ser Lys Tyr Thr Ile Asn Pro Ala Leu Thr His
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Leu Val Val Trp Asn Pro Ala Phe Phe Gly Val Lys Pro Lys Ile Val
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485 490 495

Ala Tyr Glu Asn Gly Val Lys Glu Lys Leu Gly Leu Glu Arg Gln Val
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Leu Pro Val Lys Asn Cys Arg Asn Ile Thr Lys Lys Asp Phe Lys Phe
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Asn Asp Lys Thr Ala Lys Ile Thr Val Asp Pro Lys Thr Phe Glu Val
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Pro Glu Ala Ile Ala Tyr Ile Ser Ala His Ile Met Asp Glu Ala Arg
35 40 45

cgt ggc aaa aaa acc gtt gct gaa ctt atg gaa tgt atg cac ttt 192
Arg Gly Lys Lys Thr Val Ala Glu Leu Met Glu Glu Cys Met His Phe
50 55 60

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Leu Lys Lys Asp Glu Val Met Pro Gly Val Gly Asn Met Val Pro Asp
65 70 75 80

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Leu Gly Val Glu Ala Thr Phe Pro Asp Gly Thr Lys Leu Val Thr Val
85 90 95

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Asn Trp Pro Ile Glu Pro Asp Glu His Phe Lys Ala Gly Glu Val Lys			
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ttt ggc tgt gat aaa gac att gag ctc aac gcg ggt aag gaa gtt acc			384
Phe Gly Cys Asp Lys Asp Ile Glu Leu Asn Ala Gly Lys Glu Val Thr			
115	120	125	
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Glu Leu Glu Val Thr Asn Glu Gly Pro Lys Ser Leu His Val Gly Ser			
130	135	140	
cat ttc cac ttc ttt gaa acc aac aag gca ttg aaa ttc gat cgg gaa			480
His Phe His Phe Phe Glu Thr Asn Lys Ala Leu Lys Phe Asp Arg Glu			
145	150	155	160
aaa gcc tat ggc aaa cgc cta gat att ccc tct ggc aac acg cta cgc			528
Lys Ala Tyr Gly Lys Arg Leu Asp Ile Pro Ser Gly Asn Thr Leu Arg			
165	170	175	
att ggg gca gga caa acc cgt aaa gtg cag tta atc cct ctt ggc ggt			576
Ile Gly Ala Gly Gln Thr Arg Lys Val Gln Leu Ile Pro Leu Gly Gly			
180	185	190	
agt aaa aaa gtg att ggc atg aac ggg ctt gtg aat aat att gcg gac			624
Ser Lys Lys Val Ile Gly Met Asn Gly Leu Val Asn Asn Ile Ala Asp			
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210	215	220	
atc aag taa ggagactccc atg aaa atg aaa aaa caa gag tat gta aac			721
Ile Lys	Met Lys	Met Lys	
225	230	235	
acc tac gga ccc acc aca ggc gat aaa gtg cgc tta gga gat acc gat			769
Thr Tyr Gly Pro Thr Thr Gly Asp Lys Val Arg Leu Gly Asp Thr Asp			

240 245 250
ctt tgg gca gaa gta gaa cat gac tat acc act tat ggc gaa gag ctc 817
Leu Trp Ala Glu Val Glu His Asp Tyr Thr Thr Tyr Gly Glu Glu Leu
255 260 265

aaa ttt ggc gcg ggt aaa act atc cgt gag ggt atg ggt cag agc aat 865
Lys Phe Gly Ala Gly Lys Thr Ile Arg Glu Gly Met Gly Gln Ser Asn
270 275 280 285

agc cca gat gaa aac acc tta gat tta gtg atc acc aac gcg atg att 913
Ser Pro Asp Glu Asn Thr Leu Asp Leu Val Ile Thr Asn Ala Met Ile
290 295 300

atc gac tac acc ggg att tat aaa gcc gac att ggt att aaa aat ggc 961
Ile Asp Tyr Thr Gly Ile Tyr Lys Ala Asp Ile Gly Ile Lys Asn Gly
305 310 315

aaa atc cat ggt att ggc aag gcg ggg aac aaa gac atg caa gat ggc 1009
Lys Ile His Gly Ile Gly Lys Ala Gly Asn Lys Asp Met Gln Asp Gly
320 325 330

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Val Ser Pro His Met Val Val Gly Val Gly Thr Glu Ala Leu Ala Gly
335 340 345

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350 355 360 365

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370 375 380

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Met Phe Gly Gly Gly Thr Gly Pro Val Asp Gly Thr Asn Ala Thr Thr
385 390 395

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Ile Thr Pro Gly Lys Trp Asn Leu His Arg Met Leu Arg Ala Ala Glu			
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Glu Tyr Ser Met Asn Val Gly Phe Leu Gly Lys Gly Asn Ser Ser Ser			
415	420	425	
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Lys Lys Gln Leu Val Glu Gln Val Glu Ala Gly Ala Ile Gly Phe Lys			
430	435	440	445
ttg cat gaa gac tgg ggc aca aca cca agt gcg atc gat cac tgc ttg			1393
Leu His Glu Asp Trp Gly Thr Thr Pro Ser Ala Ile Asp His Cys Leu			
450	455	460	
agc gta gca gat gaa tac gat gtg caa gtt tgt atc cac acc gat acg			1441
Ser Val Ala Asp Glu Tyr Asp Val Gln Val Cys Ile His Thr Asp Thr			
465	470	475	
gtc aat gag gca ggt tat gta gat gac acc cta aat gcg atg aac ggg			1489
Val Asn Glu Ala Gly Tyr Val Asp Asp Thr Leu Asn Ala Met Asn Gly			
480	485	490	
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Arg Ala Ile His Ala Tyr His Ile Glu Gly Ala Gly Gly His Ser			
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Pro Asp Val Ile Thr Met Ala Gly Glu Leu Asn Ile Leu Pro Ser Ser			
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acc acc ccc act att ccc tat acc att aat acg gtt gca gaa cac tta			1633
Thr Thr Pro Thr Ile Pro Tyr Thr Ile Asn Thr Val Ala Glu His Leu			
530	535	540	
gac atg ctc atg acc tgc cac cac cta gac aaa cgc atc cgc gag gat			1681
Asp Met Leu Met Thr Cys His His Leu Asp Lys Arg Ile Arg Glu Asp			

545	550	555	
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560	565	570	
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Asp Val Leu His Asp Ile Gly Val Ile Ala Met Thr Ser Ser Asp Ser			
575	580	585	
caa gca atg ggg cgc gct ggg gaa gtg att cct aga act tgg caa act 1825			
Gln Ala Met Gly Arg Ala Gly Glu Val Ile Pro Arg Thr Trp Gln Thr			
590	595	600	605
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Asp Asn Asp Asn Phe Arg Ile Lys Arg Tyr Ile Ser Lys Tyr Thr Ile			
625	630	635	
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Asn Pro Ala Leu Thr His Gly Val Ser Glu Tyr Ile Gly Ser Val Glu			
640	645	650	
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655	660	665	
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Arg Glu Met Phe Gly His His Gly Lys Ala Lys Phe Asp Thr Ser Ile			
705	710	715	
act ttt gtt tcc aaa gtc gcc tat gaa aat ggc gtg aaa gaa aaa cta			2209
Thr Phe Val Ser Lys Val Ala Tyr Glu Asn Gly Val Lys Glu Lys Leu			
720	725	730	
ggc tta gag cgc aag gtg cta ccc gtg aaa aac tgc cgc aac atc act			2257
Gly Leu Glu Arg Lys Val Leu Pro Val Lys Asn Cys Arg Asn Ile Thr			
735	740	745	
aag aaa gac ttc aaa ttc aac aac aag acg gcg cat atc act gtc gat			2305
Lys Lys Asp Phe Lys Phe Asn Asn Lys Thr Ala His Ile Thr Val Asp			
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cct aaa acc ttc gag gtc ttt gta gat ggc aaa ctc tgc acc tct aaa			2353
Pro Lys Thr Phe Glu Val Phe Val Asp Gly Lys Leu Cys Thr Ser Lys			
770	775	780	
ccc gcc tct gaa gtg cct cta gcc caa cgc tac act ttc ttc tag			2398
Pro Ala Ser Glu Val Pro Leu Ala Gln Arg Tyr Thr Phe Phe			
785	790	795	
gcacaat			2405

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<211> 226
<212> PRT
<213> Helicobacter felis

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Val Lys Leu Thr Pro Lys Glu Gln Glu Lys Phe Leu Leu Tyr Tyr Ala			
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Gly Glu Val Ala Arg Lys Arg Lys Ala Glu Gly Leu Lys Leu Asn Gln			
20	25	30	

Pro Glu Ala Ile Ala Tyr Ile Ser Ala His Ile Met Asp Glu Ala Arg
35 40 45

Arg Gly Lys Lys Thr Val Ala Glu Leu Met Glu Glu Cys Met His Phe
50 55 60

Leu Lys Lys Asp Glu Val Met Pro Gly Val Gly Asn Met Val Pro Asp
65 70 75 80

Leu Gly Val Glu Ala Thr Phe Pro Asp Gly Thr Lys Leu Val Thr Val
85 90 95

Asn Trp Pro Ile Glu Pro Asp Glu His Phe Lys Ala Gly Glu Val Lys
100 105 110

Phe Gly Cys Asp Lys Asp Ile Glu Leu Asn Ala Gly Lys Glu Val Thr
115 120 125

Glu Leu Glu Val Thr Asn Glu Gly Pro Lys Ser Leu His Val Gly Ser
130 135 140

His Phe His Phe Phe Glu Thr Asn Lys Ala Leu Lys Phe Asp Arg Glu
145 150 155 160

Lys Ala Tyr Gly Lys Arg Leu Asp Ile Pro Ser Gly Asn Thr Leu Arg
165 170 175

Ile Gly Ala Gly Gln Thr Arg Lys Val Gln Leu Ile Pro Leu Gly Gly
180 185 190

Ser Lys Lys Val Ile Gly Met Asn Gly Leu Val Asn Asn Ile Ala Asp
195 200 205

Glu Arg His Lys His Lys Ala Leu Asp Lys Ala Lys Ser His Gly Phe
210 215 220

Ile Lys

<210> 6
<211> 568
<212> PRT
<213> *Helicobacter felis*

<400> 6
 Met Lys Met Lys Lys Gln Glu Tyr Val Asn Thr Tyr Gly Pro Thr Thr
 1 5 10 15

 Gly Asp Lys Val Arg Leu Gly Asp Thr Asp Leu Trp Ala Glu Val Glu
 20 25 30

 His Asp Tyr Thr Thr Tyr Gly Glu Glu Leu Lys Phe Gly Ala Gly Lys
 35 40 45

 Thr Ile Arg Glu Gly Met Gly Gln Ser Asn Ser Pro Asp Glu Asn Thr
 50 55 60

 Leu Asp Leu Val Ile Thr Asn Ala Met Ile Ile Asp Tyr Thr Gly Ile
 65 70 75 80

 Tyr Lys Ala Asp Ile Gly Ile Lys Asn Gly Lys Ile His Gly Ile Gly
 85 90 95

 Lys Ala Gly Asn Lys Asp Met Gln Asp Gly Val Ser Pro His Met Val
 100 105 110

 Val Gly Val Gly Thr Glu Ala Leu Ala Gly Glu Gly Met Ile Ile Thr
 115 120 125

 Ala Gly Gly Ile Asp Ser His Thr His Phe Leu Ser Pro Gln Gln Phe
 130 135 140

 Pro Thr Ala Leu Ala Asn Gly Val Thr Thr Met Phe Gly Gly Gly Thr
 145 150 155 160

Gly Pro Val Asp Gly Thr Asn Ala Thr Thr Ile Thr Pro Gly Lys Trp
165 170 175

Asn Leu His Arg Met Leu Arg Ala Ala Glu Glu Tyr Ser Met Asn Val
180 185 190

Gly Phe Leu Gly Lys Gly Asn Ser Ser Ser Lys Lys Gln Leu Val Glu
195 200 205

Gln Val Glu Ala Gly Ala Ile Gly Phe Lys Leu His Glu Asp Trp Gly
210 215 220

Thr Thr Pro Ser Ala Ile Asp His Cys Leu Ser Val Ala Asp Glu Tyr
225 230 235 240

Asp Val Gln Val Cys Ile His Thr Asp Thr Val Asn Glu Ala Gly Tyr
245 250 255

Val Asp Asp Thr Leu Asn Ala Met Asn Gly Arg Ala Ile His Ala Tyr
260 265 270

His Ile Glu Gly Ala Gly Gly His Ser Pro Asp Val Ile Thr Met
275 280 285

Ala Gly Glu Leu Asn Ile Leu Pro Ser Ser Thr Thr Pro Thr Ile Pro
290 295 300

Tyr Thr Ile Asn Thr Val Ala Glu His Leu Asp Met Leu Met Thr Cys
305 310 315 320

His His Leu Asp Lys Arg Ile Arg Glu Asp Leu Gln Phe Ser Gln Ser
325 330 335

Arg Ile Arg Pro Gly Ser Ile Ala Ala Glu Asp Val Leu His Asp Ile
340 345 350

Gly Val Ile Ala Met Thr Ser Ser Asp Ser Gln Ala Met Gly Arg Ala

355 360 365
Gly Glu Val Ile Pro Arg Thr Trp Gln Thr Ala Asp Lys Asn Lys Lys
370 375 380

Glu Phe Gly Lys Leu Pro Glu Asp Gly Ala Asp Asn Asp Asn Phe Arg
385 390 395 400

Ile Lys Arg Tyr Ile Ser Lys Tyr Thr Ile Asn Pro Ala Leu Thr His
405 410 415

Gly Val Ser Glu Tyr Ile Gly Ser Val Glu Glu Gly Lys Ile Ala Asp
420 425 430

Leu Val Val Trp Asn Pro Ala Phe Phe Gly Val Lys Pro Lys Ile Val
435 440 445

Ile Lys Gly Gly Met Val Val Phe Ser Glu Met Gly Asp Ser Asn Ala
450 455 460

Ser Val Pro Thr Pro Gln Pro Val Tyr Tyr Arg Glu Met Phe Gly His
465 470 475 480

His Gly Lys Ala Lys Phe Asp Thr Ser Ile Thr Phe Val Ser Lys Val
485 490 495

Ala Tyr Glu Asn Gly Val Lys Glu Lys Leu Gly Leu Glu Arg Lys Val
500 505 510

Leu Pro Val Lys Asn Cys Arg Asn Ile Thr Lys Lys Asp Phe Lys Phe
515 520 525

Asn Asn Lys Thr Ala His Ile Thr Val Asp Pro Lys Thr Phe Glu Val
530 535 540

Phe Val Asp Gly Lys Leu Cys Thr Ser Lys Pro Ala Ser Glu Val Pro
545 550 555 560

Leu Ala Gln Arg Tyr Thr Phe Phe

565

<210> 7

<211> 2183

<212> DNA

<213> Helicobacter felis

<220>

<221> CDS

<222> (3)..(683)

<220>

<221> CDS

<222> (694)..(2181)

<400> 7

tc gtg aaa ctc aca ccc aaa gag caa gaa aag ttc ttg tta tat tat 47
Val Lys Leu Thr Pro Lys Glu Gln Glu Lys Phe Leu Leu Tyr Tyr
1 5 10 15

gcg ggc gaa gtg gct aga aag cgc aaa gca gag ggc tta aag ctc aat 95
Ala Gly Glu Val Ala Arg Lys Arg Lys Ala Glu Gly Leu Lys Leu Asn
20 25 30

caa ccc gaa gcc att gcc tac att agt gcc cat att atg gac gag gcg 143
Gln Pro Glu Ala Ile Ala Tyr Ile Ser Ala His Ile Met Asp Glu Ala
35 40 45

cgc cgt ggc aaa aaa acc gtt gct gaa ctt atg gaa gaa tgt atg cac 191
Arg Arg Gly Lys Lys Thr Val Ala Glu Leu Met Glu Glu Cys Met His
50 55 60

ttt ttg aaa aaa gat gag gtg atg ccc ggt gtg ggg aat atg gtc cct 239
Phe Leu Lys Lys Asp Glu Val Met Pro Gly Val Gly Asn Met Val Pro
65 70 75

gat ttg ggc gta gaa gcc act ttc ccc gat ggc acc aaa ctc gta acc 287
Asp Leu Gly Val Glu Ala Thr Phe Pro Asp Gly Thr Lys Leu Val Thr
80 85 90 95

gtg aat tgg ccc att gaa cct gat gaa cac ttt aaa gcc ggt gaa gtg 335
Val Asn Trp Pro Ile Glu Pro Asp Glu His Phe Lys Ala Gly Glu Val
100 105 110

aaa ttt ggc tgt gat aaa gac att gag ctc aac gtg ggt aag gaa gtt 383
Lys Phe Gly Cys Asp Lys Asp Ile Glu Leu Asn Val Gly Lys Glu Val
115 120 125

acc gag ctt gaa gtt acc aac gaa gga cct aaa tcc ttg cat gtg ggt 431
Thr Glu Leu Glu Val Thr Asn Glu Gly Pro Lys Ser Leu His Val Gly
130 135 140

agc cat ttc cac ttc ttt gaa acc aac aag gca ttg aaa ttc gat cg 479
Ser His Phe His Phe Glu Thr Asn Lys Ala Leu Lys Phe Asp Arg
145 150 155

gaa aaa gcc tat ggc aaa cgc cta gat att ccc tct ggc aac acg cta 527
Glu Lys Ala Tyr Gly Lys Arg Leu Asp Ile Pro Ser Gly Asn Thr Leu
160 165 170 175

cgc att ggg gca gga caa acc cgt aaa gtg cag tta atc cct ctt ggc 575
Arg Ile Gly Ala Gly Gln Thr Arg Lys Val Gln Leu Ile Pro Leu Gly
180 185 190

ggt agt aaa aaa gtg att ggc atg aac ggg ctt gtg aat aat att gcg 623
Gly Ser Lys Lys Val Ile Gly Met Asn Gly Leu Val Asn Asn Ile Ala
195 200 205

gac gaa cgc cat aaa cac aaa gca cta gac aag gca aaa tct cac gga 671
Asp Glu Arg His Lys His Lys Ala Leu Asp Lys Ala Lys Ser His Gly
210 215 220

ttc atc aag taa ggagactccc atg aaa atg aaa aaa caa gag tat gta 720

Phe Ile Lys		Met Lys Met Lys Lys Gln Glu Tyr Val		
225		230	235	
aac acc tac gga ccc acc aca ggc gat aaa gtg cgc tta gga gat acc			768	
Asn Thr Tyr Gly Pro Thr Thr Gly Asp Lys Val Arg Leu Gly Asp Thr				
240		245	250	
gat ctt tgg gca gaa gta gaa cat gac tat acc act tat ggc gaa gag			816	
Asp Leu Trp Ala Glu Val Glu His Asp Tyr Thr Tyr Gly Glu Glu				
255		260	265	
ctc aaa ttt ggc gcg ggt aaa act atc cgt gag ggt atg ggt cag agc			864	
Leu Lys Phe Gly Ala Gly Lys Thr Ile Arg Glu Gly Met Gly Gln Ser				
270		275	280	
aat agc cca gat gaa aac acc tta gat tta gtg atc acc aac gcg atg			912	
Asn Ser Pro Asp Glu Asn Thr Leu Asp Leu Val Ile Thr Asn Ala Met				
285		290	295	300
att atc gac tac acc ggg att tat aaa gcc gac att ggt att aaa aat			960	
Ile Ile Asp Tyr Thr Gly Ile Tyr Lys Ala Asp Ile Gly Ile Lys Asn				
305		310	315	
ggc aaa atc cat ggt att ggc aag gcg ggg aac aaa gac atg caa gat			1008	
Gly Lys Ile His Gly Ile Gly Lys Ala Gly Asn Lys Asp Met Gln Asp				
320		325	330	
ggc gta agc cct cat atg gtc gtg ggt gtg ggc aca gaa gca cta gca			1056	
Gly Val Ser Pro His Met Val Val Gly Val Gly Thr Glu Ala Leu Ala				
335		340	345	
ggg gaa ggt atg att att acc gct ggg ggg atc gat tcg cac acc cac			1104	
Gly Glu Gly Met Ile Ile Thr Ala Gly Gly Ile Asp Ser His Thr His				
350		355	360	
ttc ctc tct ccc caa caa ttc cct acc gct cta gcc aat ggt gtt aca			1152	
Phe Leu Ser Pro Gln Gln Phe Pro Thr Ala Leu Ala Asn Gly Val Thr				
365		370	375	380

acc atg ttt gga ggt ggc aca ggt ccg gta gat ggc acg aat gcg acc 1200
Thr Met Phe Gly Gly Thr Gly Pro Val Asp Gly Thr Asn Ala Thr
385 390 395

acc atc act ccg ggc aaa tgg aac ttg cac ccg atg ttg cgc gca gct 1248
Thr Ile Thr Pro Gly Lys Trp Asn Leu His Arg Met Leu Arg Ala Ala
400 405 410

gaa gag tat tct atg aat gta ggc ttt ttg ggc aaa ggc aat agt tct 1296
Glu Glu Tyr Ser Met Asn Val Gly Phe Leu Gly Lys Gly Asn Ser Ser
415 420 425

agc aaa aaa caa ctt gta gaa caa gta gaa gcg ggc gcg att ggc ttt 1344
Ser Lys Lys Gln Leu Val Glu Gln Val Glu Ala Gly Ala Ile Gly Phe
430 435 440

aaa ttg cat gaa gac tgg ggc aca aca cca agt gcg atc gat cac tgc 1392
Lys Leu His Glu Asp Trp Gly Thr Thr Pro Ser Ala Ile Asp His Cys
445 450 455 460

ttg agc gtg gca gat gaa tac gat gtg caa gtt tgt atc cac acc gat 1440
Leu Ser Val Ala Asp Glu Tyr Asp Val Gln Val Cys Ile His Thr Asp
465 470 475

acg gtc aat gag gca ggt tat gtg gat gac acc cta aat gca atg aac 1488
Thr Val Asn Glu Ala Gly Tyr Val Asp Asp Thr Leu Asn Ala Met Asn
480 485 490

ggg cgc gcc atc cat gcc tac cac att gag gga gcg ggc gga gga cac 1536
Gly Arg Ala Ile His Ala Tyr His Ile Glu Gly Ala Gly Gly His
495 500 505

tca cct gat gtt atc acc atg gca ggc gag ctc aat att cta ccc tcc 1584
Ser Pro Asp Val Ile Thr Met Ala Gly Glu Leu Asn Ile Leu Pro Ser
510 515 520

tcc acc acc ccc act att ccc tat acc att aat acg gtt gca gaa cac 1632

Ser Thr Thr Pro Thr Ile Pro Tyr Thr Ile Asn Thr Val Ala Glu His 1680
 525 530 535 540

 tta gac atg ctc atg acc tgc cac cac cta gat aag cgc atc cgc gag 1680
 Leu Asp Met Leu Met Thr Cys His His Leu Asp Lys Arg Ile Arg Glu
 545 550 555

 gat tta caa ttt tct caa agc cgt atc cgc ccc gga tct att gcc gct 1728
 Asp Leu Gln Phe Ser Gln Ser Arg Ile Arg Pro Gly Ser Ile Ala Ala
 560 565 570

 gag gat gtg ctc cat gat att ggc gtg atc gcg atg act agc tcc gat 1776
 Glu Asp Val Leu His Asp Ile Gly Val Ile Ala Met Thr Ser Ser Asp
 575 580 585

 tcg caa gca atg ggg cgc gct ggg gaa gtg att cct aga act tgg caa 1824
 Ser Gln Ala Met Gly Arg Ala Gly Glu Val Ile Pro Arg Thr Trp Gln
 590 595 600

 act gca gat aag aat aaa aaa gaa ttt ggt aag ctt cct gaa gat ggt 1872
 Thr Ala Asp Lys Asn Lys Lys Glu Phe Gly Lys Leu Pro Glu Asp Gly
 605 610 615 620

 gca gat aac gac aac ttc cgc atc aaa cgc tat atc tcc aaa tac acc 1920
 Ala Asp Asn Asp Asn Phe Arg Ile Lys Arg Tyr Ile Ser Lys Tyr Thr
 625 630 635

 att aat ccc gct ttg acc cat ggc gtg agc gag tat atc ggc tct gtg 1968
 Ile Asn Pro Ala Leu Thr His Gly Val Ser Glu Tyr Ile Gly Ser Val
 640 645 650

 gaa gag ggc aag atc gcc gac ttg gtg gtg tgg aat cct gcc ttt ttt 2016
 Glu Glu Gly Lys Ile Ala Asp Leu Val Val Trp Asn Pro Ala Phe Phe
 655 660 665

 ggc gtg aaa cct aag att gtg att aaa ggt ggc atg gtg gtc ttc tct 2064
 Gly Val Lys Pro Lys Ile Val Ile Lys Gly Gly Met Val Val Phe Ser
 670 675 680

gaa atg ggc gat tct aac gcg tcc gtg ccc acg cct cag ccg gtt tat 2112
Glu Met Gly Asp Ser Asn Ala Ser Val Pro Thr Pro Gln Pro Val Tyr
685 690 695 700

tac cgc gaa atg ttt ggg cac cac ggc aag gcg aaa ttt gac acc agc 2160
Tyr Arg Glu Met Phe Gly His His Gly Lys Ala Lys Phe Asp Thr Ser
705 710 715

atc act ttt cgt gtc tca agc gg 2183
Ile Thr Phe Arg Val Ser Ser
720

<210> 8
<211> 226
<212> PRT
<213> Helicobacter felis

<400> 8
Val Lys Leu Thr Pro Lys Glu Gln Glu Lys Phe Leu Leu Tyr Tyr Ala
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Gly Glu Val Ala Arg Lys Arg Lys Ala Glu Gly Leu Lys Leu Asn Gln
20 25 30

Pro Glu Ala Ile Ala Tyr Ile Ser Ala His Ile Met Asp Glu Ala Arg
35 40 45

Arg Gly Lys Lys Thr Val Ala Glu Leu Met Glu Glu Cys Met His Phe
50 55 60

Leu Lys Lys Asp Glu Val Met Pro Gly Val Gly Asn Met Val Pro Asp
65 70 75 80

Leu Gly Val Glu Ala Thr Phe Pro Asp Gly Thr Lys Leu Val Thr Val
85 90 95

Asn Trp Pro Ile Glu Pro Asp Glu His Phe Lys Ala Gly Glu Val Lys
100 105 110

Phe Gly Cys Asp Lys Asp Ile Glu Leu Asn Val Gly Lys Glu Val Thr
115 120 125

Glu Leu Glu Val Thr Asn Glu Gly Pro Lys Ser Leu His Val Gly Ser
130 135 140

His Phe His Phe Phe Glu Thr Asn Lys Ala Leu Lys Phe Asp Arg Glu
145 150 155 160

Lys Ala Tyr Gly Lys Arg Leu Asp Ile Pro Ser Gly Asn Thr Leu Arg
165 170 175

Ile Gly Ala Gly Gln Thr Arg Lys Val Gln Leu Ile Pro Leu Gly Gly
180 185 190

Ser Lys Lys Val Ile Gly Met Asn Gly Leu Val Asn Asn Ile Ala Asp
195 200 205

Glu Arg His Lys His Lys Ala Leu Asp Lys Ala Lys Ser His Gly Phe
210 215 220

Ile Lys
225

<210> 9
<211> 496
<212> PRT
<213> Helicobacter felis

<400> 9
Met Lys Met Lys Lys Gln Glu Tyr Val Asn Thr Tyr Gly Pro Thr Thr
1 5 10 15

Gly Asp Lys Val Arg Leu Gly Asp Thr Asp Leu Trp Ala Glu Val Glu

	20	25	30
His Asp Tyr Thr Thr Tyr Gly Glu Glu Leu Lys Phe Gly Ala Gly Lys			
	35	40	45
Thr Ile Arg Glu Gly Met Gly Gln Ser Asn Ser Pro Asp Glu Asn Thr			
	50	55	60
Leu Asp Leu Val Ile Thr Asn Ala Met Ile Ile Asp Tyr Thr Gly Ile			
	65	70	75
Tyr Lys Ala Asp Ile Gly Ile Lys Asn Gly Lys Ile His Gly Ile Gly			
	85	90	95
Lys Ala Gly Asn Lys Asp Met Gln Asp Gly Val Ser Pro His Met Val			
	100	105	110
Val Gly Val Gly Thr Glu Ala Leu Ala Gly Glu Gly Met Ile Ile Thr			
	115	120	125
Ala Gly Gly Ile Asp Ser His Thr His Phe Leu Ser Pro Gln Gln Phe			
	130	135	140
Pro Thr Ala Leu Ala Asn Gly Val Thr Thr Met Phe Gly Gly Thr			
	145	150	155
Gly Pro Val Asp Gly Thr Asn Ala Thr Thr Ile Thr Pro Gly Lys Trp			
	165	170	175
Asn Leu His Arg Met Leu Arg Ala Ala Glu Glu Tyr Ser Met Asn Val			
	180	185	190
Gly Phe Leu Gly Lys Gly Asn Ser Ser Ser Lys Lys Gln Leu Val Glu			
	195	200	205
Gln Val Glu Ala Gly Ala Ile Gly Phe Lys Leu His Glu Asp Trp Gly			
	210	215	220

Thr Thr Pro Ser Ala Ile Asp His Cys Leu Ser Val Ala Asp Glu Tyr
225 230 235 240

Asp Val Gln Val Cys Ile His Thr Asp Thr Val Asn Glu Ala Gly Tyr
245 250 255

Val Asp Asp Thr Leu Asn Ala Met Asn Gly Arg Ala Ile His Ala Tyr
260 265 270

His Ile Glu Gly Ala Gly Gly His Ser Pro Asp Val Ile Thr Met
275 280 285

Ala Gly Glu Leu Asn Ile Leu Pro Ser Ser Thr Thr Pro Thr Ile Pro
290 295 300

Tyr Thr Ile Asn Thr Val Ala Glu His Leu Asp Met Leu Met Thr Cys
305 310 315 320

His His Leu Asp Lys Arg Ile Arg Glu Asp Leu Gln Phe Ser Gln Ser
325 330 335

Arg Ile Arg Pro Gly Ser Ile Ala Ala Glu Asp Val Leu His Asp Ile
340 345 350

Gly Val Ile Ala Met Thr Ser Ser Asp Ser Gln Ala Met Gly Arg Ala
355 360 365

Gly Glu Val Ile Pro Arg Thr Trp Gln Thr Ala Asp Lys Asn Lys Lys
370 375 380

Glu Phe Gly Lys Leu Pro Glu Asp Gly Ala Asp Asn Asp Asn Phe Arg
385 390 395 400

Ile Lys Arg Tyr Ile Ser Lys Tyr Thr Ile Asn Pro Ala Leu Thr His
405 410 415

Gly Val Ser Glu Tyr Ile Gly Ser Val Glu Glu Gly Lys Ile Ala Asp
420 425 430

Leu Val Val Trp Asn Pro Ala Phe Phe Gly Val Lys Pro Lys Ile Val
435 440 445

Ile Lys Gly Gly Met Val Val Phe Ser Glu Met Gly Asp Ser Asn Ala
450 455 460

Ser Val Pro Thr Pro Gln Pro Val Tyr Tyr Arg Glu Met Phe Gly His
465 470 475 480

His Gly Lys Ala Lys Phe Asp Thr Ser Ile Thr Phe Arg Val Ser Ser
485 490 495

<210> 10

<211> 2407

<212> DNA

<213> Helicobacter felis

<220>

<221> CDS

<222> (2)..(682)

<220>

<221> CDS

<222> (693)..(2399)

<400> 10

c gtg aaa ctc aca ccc aaa gag caa gaa aag ttc ttg tta tat tat tat gcg 49
Val Lys Leu Thr Pro Lys Glu Gln Glu Lys Phe Leu Leu Tyr Tyr Ala
1 5 10 15

ggc gaa gtg gct aga aag cgc aaa gcg gag ggc tta aag ctc aac caa 97
Gly Glu Val Ala Arg Lys Arg Lys Ala Glu Gly Leu Lys Leu Asn Gln
20 25 30

ccc gaa gcc att gcc tac att agt gcc cat att atg gac gag gcg cgc 145

Pro	Glu	Ala	Ile	Ala	Tyr	Ile	Ser	Ala	His	Ile	Met	Asp	Glu	Ala	Arg	
35							40							45		
cgt	ggc	aaa	aag	acc	gtt	gct	gaa	ctt	atg	gaa	gag	tgt	atg	cac	ttt	193
Arg	Gly	Lys	Lys	Thr	Val	Ala	Glu	Leu	Met	Glu	Glu	Cys	Met	His	Phe	
50														60		
ttg	aaa	aaa	gac	gag	gtg	atg	ccc	ggt	gtg	ggg	aat	atg	gtc	cct	gat	241
Leu	Lys	Lys	Asp	Glu	Val	Met	Pro	Gly	Val	Gly	Asn	Met	Val	Pro	Asp	
65							70							75		80
tta	ggc	gtg	gaa	gct	act	ttt	ccc	gat	ggc	acc	aaa	ctc	gta	acc	gtg	289
Leu	Gly	Val	Glu	Ala	Thr	Phe	Pro	Asp	Gly	Thr	Lys	Leu	Val	Thr	Val	
85														90		95
aat	tgg	ccc	atc	gaa	ccc	gat	gaa	cac	ttc	aaa	gcg	ggc	gaa	gtc	aaa	337
Asn	Trp	Pro	Ile	Glu	Pro	Asp	Glu	His	Phe	Lys	Ala	Gly	Glu	Val	Lys	
100														110		
ttt	ggc	tgt	gat	aaa	gac	att	gaa	ctc	aac	gca	ggt	aag	gaa	gtt	acc	385
Phe	Gly	Cys	Asp	Lys	Asp	Ile	Glu	Leu	Asn	Ala	Gly	Lys	Glu	Val	Thr	
115							120							125		
gaa	cta	gaa	gtt	acc	aac	gaa	gga	cct	aaa	tcc	ttg	cat	gtg	ggt	agc	433
Glu	Leu	Glu	Val	Thr	Asn	Glu	Gly	Pro	Lys	Ser	Leu	His	Val	Gly	Ser	
130							135							140		
cat	ttc	cac	ttc	ttt	gaa	gcc	aac	aag	gca	ttg	aaa	ttc	gat	cgg	gaa	481
His	Phe	His	Phe	Phe	Glu	Ala	Asn	Lys	Ala	Leu	Lys	Phe	Asp	Arg	Glu	
145							150							155		160
aaa	gcc	tat	ggc	aaa	cgc	cta	gat	att	ccc	tct	ggc	aac	acg	cta	cgc	529
Lys	Ala	Tyr	Gly	Lys	Arg	Leu	Asp	Ile	Pro	Ser	Gly	Asn	Thr	Leu	Arg	
165														170		175
att	ggg	gca	gga	caa	acc	cgt	aaa	gtg	cag	tta	atc	cct	ctt	ggc	ggc	577
Ile	Gly	Ala	Gly	Gln	Thr	Arg	Lys	Val	Gln	Leu	Ile	Pro	Leu	Gly	Gly	
180														190		

agt aaa aaa gtg att ggc atg aac ggg ctt gtg aat aat att gca gat 625
Ser Lys Val Ile Gly Met Asn Gly Leu Val Asn Asn Ile Ala Asp
195 200 205

gaa cgc cat aaa cac aaa gcg tta gaa aaa gca aaa tct cac gga ttt 673
Glu Arg His Lys His Lys Ala Leu Glu Lys Ala Lys Ser His Gly Phe
210 215 220

atc aaa taa ggagactccc atg aaa atg aaa aaa caa gag tat gta aat 722
Ile Lys Met Lys Met Lys Lys Gln Glu Tyr Val Asn
225 230 235

acc tac gga cct acc aca ggc gac aaa gtg cgc tta gga gat acc gat 770
Thr Tyr Gly Pro Thr Thr Gly Asp Lys Val Arg Leu Gly Asp Thr Asp
240 245 250

ctt tgg gca gaa gta gaa cat gac tat acc act tat ggc gaa gag ctc 818
Leu Trp Ala Glu Val Glu His Asp Tyr Thr Tyr Gly Glu Glu Leu
255 260 265

aaa ttt ggc gcg ggt aaa act atc cgt gag ggc atg ggt cag agc aat 866
Lys Phe Gly Ala Gly Lys Thr Ile Arg Glu Gly Met Gly Gln Ser Asn
270 275 280 285

agt cca gat gaa aac acc cta gat tta gtc atc acc aac gcg atg att 914
Ser Pro Asp Glu Asn Thr Leu Asp Leu Val Ile Thr Asn Ala Met Ile
290 295 300

att gac tac acc ggg att tac aaa gcc gac att ggc att aaa aat ggc 962
Ile Asp Tyr Thr Gly Ile Tyr Lys Ala Asp Ile Gly Ile Lys Asn Gly
305 310 315

aaa atc cat ggc att ggc aag gca gga aac aag gac atg caa gat ggc 1010
Lys Ile His Gly Ile Gly Lys Ala Gly Asn Lys Asp Met Gln Asp Gly
320 325 330

gta agc cct cat atg gtc gtg ggt gtg ggc aca gaa gca tta gca ggg 1058

Val Ser Pro His Met Val Val Gly Val Gly Thr Glu Ala Leu Ala Gly			
335	340	345	
gaa ggt atg att att acc gct ggg ggg atc gat tca cac acc cac ttc			1106
Glu Gly Met Ile Ile Thr Ala Gly Gly Ile Asp Ser His Thr His Phe			
350	355	360	365
ctc tct cca caa caa ttc cct acc gct cta gcc aat ggc gtt aca acc			1154
Leu Ser Pro Gln Gln Phe Pro Thr Ala Leu Ala Asn Gly Val Thr Thr			
370	375	380	
atg ttt ggc ggt ggc aca ggt ccg gta gat ggc acg aat gcg act acc			1202
Met Phe Gly Gly Thr Gly Pro Val Asp Gly Thr Asn Ala Thr Thr			
385	390	395	
atc act ccg ggc aaa tgg aac ttg cac cgc atg ttg cgc gca gct gaa			1250
Ile Thr Pro Gly Lys Trp Asn Leu His Arg Met Leu Arg Ala Ala Glu			
400	405	410	
gag tat tct atg aat gtg ggc ttt ttg ggc aaa ggc aat agc tcc agt			1298
Glu Tyr Ser Met Asn Val Gly Phe Leu Gly Lys Gly Asn Ser Ser Ser			
415	420	425	
aaa aaa caa ctt gta gaa caa ata gaa gcg ggc gcg atc ggc ttt aaa			1346
Lys Lys Gln Leu Val Glu Gln Ile Glu Ala Gly Ala Ile Gly Phe Lys			
430	435	440	445
ttg cat gaa gac tgg ggc aca act cca agt gca atc gat cac tgc ttg			1394
Leu His Glu Asp Trp Gly Thr Thr Pro Ser Ala Ile Asp His Cys Leu			
450	455	460	
agc gta gca gat gaa tac gat gtg caa gtt tgt atc cac acc gat acg			1442
Ser Val Ala Asp Glu Tyr Asp Val Gln Val Cys Ile His Thr Asp Thr			
465	470	475	
gtc aat gag gca ggt tat gta gat gac acc ctg aat gcg atg aac ggg			1490
Val Asn Glu Ala Gly Tyr Val Asp Asp Thr Leu Asn Ala Met Asn Gly			
480	485	490	

cgc gcc atc cat gcc tac cac att gag gga gcg ggc gga gga cac tca 1538
Arg Ala Ile His Ala Tyr His Ile Glu Gly Ala Gly Gly Gly His Ser
495 500 505

cct gat gtt atc acc atg gca ggc gag ctc aat att cta ccc tcc tcc 1586
Pro Asp Val Ile Thr Met Ala Gly Glu Leu Asn Ile Leu Pro Ser Ser
510 515 520 525

aca acc ccc act atc ccc tat acc att aat acg gtt gca gaa cac tta 1634
Thr Thr Pro Thr Ile Pro Tyr Thr Ile Asn Thr Val Ala Glu His Leu
530 535 540

gac atg ctc atg acc tgc cac cac cta gat aaa cgc atc cgc gag gat 1682
Asp Met Leu Met Thr Cys His His Leu Asp Lys Arg Ile Arg Glu Asp
545 550 555

tta caa ttt tcc caa agc cgt atc cgc ccc ggc tct atc gcc gct gaa 1730
Leu Gln Phe Ser Gln Ser Arg Ile Arg Pro Gly Ser Ile Ala Ala Glu
560 565 570

gat gtg ctc cat gat att ggc gtg atc gcg atg aca agc tcg gat tcg 1778
Asp Val Leu His Asp Ile Gly Val Ile Ala Met Thr Ser Ser Asp Ser
575 580 585

caa gca atg ggg cgc gct ggc gaa gtg att cct cga act tgg cag act 1826
Gln Ala Met Gly Arg Ala Gly Glu Val Ile Pro Arg Thr Trp Gln Thr
590 595 600 605

gcg gat aag aat aaa aaa gaa ttt ggt aag ctt cct gaa gat agt gca 1874
Ala Asp Lys Asn Lys Lys Glu Phe Gly Lys Leu Pro Glu Asp Ser Ala
610 615 620

gat aac gac aac ttc cgt atc aaa cgc tac atc tcc aaa tac act att 1922
Asp Asn Asp Asn Phe Arg Ile Lys Arg Tyr Ile Ser Lys Tyr Thr Ile
625 630 635

aac ccc gct cta acc cat ggg gta agc gag tat atc ggc tct gtg gaa 1970

Asn Pro Ala Leu Thr His Gly Val Ser Glu Tyr Ile Gly Ser Val Glu			
640	645	650	
gag ggc aaa atc gct gat ttg gtg gtg tgg aat cct gcc ttt ttt ggt 2018			
Glu Gly Lys Ile Ala Asp Leu Val Val Trp Asn Pro Ala Phe Phe Gly			
655	660	665	
gtg aaa cct aag att gtg atc aaa ggc ggt atg gtg gtc ttc tct gaa 2066			
Val Lys Pro Lys Ile Val Ile Lys Gly Gly Met Val Val Phe Ser Glu			
670	675	680	685
atg ggc gac tcc aac gcg tcc gtg cct aca cct cag ccg gtt tat tac 2114			
Met Gly Asp Ser Asn Ala Ser Val Pro Thr Pro Gln Pro Val Tyr Tyr			
690	695	700	
cgc gaa atg ttt ggg cat cac ggc aag gcg aaa ttt gac acc agc atc 2162			
Arg Glu Met Phe Gly His His Gly Lys Ala Lys Phe Asp Thr Ser Ile			
705	710	715	
act ttt gtt tcc aaa gtc gcc tat gaa aat ggc gtg aaa gaa aaa cta 2210			
Thr Phe Val Ser Lys Val Ala Tyr Glu Asn Gly Val Lys Glu Lys Leu			
720	725	730	
ggc tta gag cgc aag gtg cta ccc gtg aaa aac tgc cgc aac atc act 2258			
Gly Leu Glu Arg Lys Val Leu Pro Val Lys Asn Cys Arg Asn Ile Thr			
735	740	745	
aag aaa gac ttc aaa ttc aac aac aag acg gcg cat atc act gtc gat 2306			
Lys Lys Asp Phe Lys Phe Asn Asn Lys Thr Ala His Ile Thr Val Asp			
750	755	760	765
cct aaa acc ttc gag gtc ttt gta gat ggc aaa ctc tgc acc tct aaa 2354			
Pro Lys Thr Phe Glu Val Phe Val Asp Gly Lys Leu Cys Thr Ser Lys			
770	775	780	
ccc gcc tct gaa gtg cct cta gcc cag cgc tac act ttc ttc tag 2399			
Pro Ala Ser Glu Val Pro Leu Ala Gln Arg Tyr Thr Phe Phe			
785	790	795	

gcncaatg

2407

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<212> PRT
<213> *Helicobacter felis*

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Val Lys Leu Thr Pro Lys Glu Gln Glu Lys Phe Leu Leu Tyr Tyr Ala
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Gly Glu Val Ala Arg Lys Arg Lys Ala Glu Gly Leu Lys Leu Asn Gln
20 25 30

Pro Glu Ala Ile Ala Tyr Ile Ser Ala His Ile Met Asp Glu Ala Arg
35 40 45

Arg Gly Lys Lys Thr Val Ala Glu Leu Met Glu Glu Cys Met His Phe
50 55 60

Leu Lys Lys Asp Glu Val Met Pro Gly Val Gly Asn Met Val Pro Asp
65 70 75 80

Leu Gly Val Glu Ala Thr Phe Pro Asp Gly Thr Lys Leu Val Thr Val
 85 90 95

Asn Trp Pro Ile Glu Pro Asp Glu His Phe Lys Ala Gly Glu Val Lys
 100 105 110

Phe Gly Cys Asp Lys Asp Ile Glu Leu Asn Ala Gly Lys Glu Val Thr
 115 120 125

Glu Leu Glu Val Thr Asn Glu Gly Pro Lys Ser Leu His Val Gly Ser
130 135 140

His Phe His Phe Phe Glu Ala Asn Lys Ala Leu Lys Phe Asp Arg Glu

145 150 155 160

Lys Ala Tyr Gly Lys Arg Leu Asp Ile Pro Ser Gly Asn Thr Leu Arg
165 170 175

Ile Gly Ala Gly Gln Thr Arg Lys Val Gln Leu Ile Pro Leu Gly Gly
180 185 190

Ser Lys Lys Val Ile Gly Met Asn Gly Leu Val Asn Asn Ile Ala Asp
195 200 205

Glu Arg His Lys His Lys Ala Leu Glu Lys Ala Lys Ser His Gly Phe
210 215 220

Ile Lys
225

<210> 12

<211> 568

<212> PRT

<213> Helicobacter felis

<400> 12

Met Lys Met Lys Lys Gln Glu Tyr Val Asn Thr Tyr Gly Pro Thr Thr
1 5 10 15

Gly Asp Lys Val Arg Leu Gly Asp Thr Asp Leu Trp Ala Glu Val Glu
20 25 30

His Asp Tyr Thr Thr Tyr Gly Glu Glu Leu Lys Phe Gly Ala Gly Lys
35 40 45

Thr Ile Arg Glu Gly Met Gly Gln Ser Asn Ser Pro Asp Glu Asn Thr
50 55 60

Leu Asp Leu Val Ile Thr Asn Ala Met Ile Ile Asp Tyr Thr Gly Ile
65 70 75 80

Tyr Lys Ala Asp Ile Gly Ile Lys Asn Gly Lys Ile His Gly Ile Gly
85 90 95

Lys Ala Gly Asn Lys Asp Met Gln Asp Gly Val Ser Pro His Met Val
100 105 110

Val Gly Val Gly Thr Glu Ala Leu Ala Gly Glu Gly Met Ile Ile Thr
115 120 125

Ala Gly Gly Ile Asp Ser His Thr His Phe Leu Ser Pro Gln Gln Phe
130 135 140

Pro Thr Ala Leu Ala Asn Gly Val Thr Thr Met Phe Gly Gly Thr
145 150 155 160

Gly Pro Val Asp Gly Thr Asn Ala Thr Thr Ile Thr Pro Gly Lys Trp
165 170 175

Asn Leu His Arg Met Leu Arg Ala Ala Glu Glu Tyr Ser Met Asn Val
180 185 190

Gly Phe Leu Gly Lys Gly Asn Ser Ser Ser Lys Lys Gln Leu Val Glu
195 200 205

Gln Ile Glu Ala Gly Ala Ile Gly Phe Lys Leu His Glu Asp Trp Gly
210 215 220

Thr Thr Pro Ser Ala Ile Asp His Cys Leu Ser Val Ala Asp Glu Tyr
225 230 235 240

Asp Val Gln Val Cys Ile His Thr Asp Thr Val Asn Glu Ala Gly Tyr
245 250 255

Val Asp Asp Thr Leu Asn Ala Met Asn Gly Arg Ala Ile His Ala Tyr
260 265 270

His Ile Glu Gly Ala Gly Gly His Ser Pro Asp Val Ile Thr Met

275 280 285

Ala Gly Glu Leu Asn Ile Leu Pro Ser Ser Thr Thr Pro Thr Ile Pro
290 295 300

Tyr Thr Ile Asn Thr Val Ala Glu His Leu Asp Met Leu Met Thr Cys
305 310 315 320

His His Leu Asp Lys Arg Ile Arg Glu Asp Leu Gln Phe Ser Gln Ser
325 330 335

Arg Ile Arg Pro Gly Ser Ile Ala Ala Glu Asp Val Leu His Asp Ile
340 345 350

Gly Val Ile Ala Met Thr Ser Ser Asp Ser Gln Ala Met Gly Arg Ala
355 360 365

Gly Glu Val Ile Pro Arg Thr Trp Gln Thr Ala Asp Lys Asn Lys Lys
370 375 380

Glu Phe Gly Lys Leu Pro Glu Asp Ser Ala Asp Asn Asp Asn Phe Arg
385 390 395 400

Ile Lys Arg Tyr Ile Ser Lys Tyr Thr Ile Asn Pro Ala Leu Thr His
405 410 415

Gly Val Ser Glu Tyr Ile Gly Ser Val Glu Glu Gly Lys Ile Ala Asp
420 425 430

Leu Val Val Trp Asn Pro Ala Phe Phe Gly Val Lys Pro Lys Ile Val
435 440 445

Ile Lys Gly Gly Met Val Val Phe Ser Glu Met Gly Asp Ser Asn Ala
450 455 460

Ser Val Pro Thr Pro Gln Pro Val Tyr Tyr Arg Glu Met Phe Gly His
465 470 475 480

His Gly Lys Ala Lys Phe Asp Thr Ser Ile Thr Phe Val Ser Lys Val
485 490 495

Ala Tyr Glu Asn Gly Val Lys Glu Lys Leu Gly Leu Glu Arg Lys Val
500 505 510

Leu Pro Val Lys Asn Cys Arg Asn Ile Thr Lys Lys Asp Phe Lys Phe
515 520 525

Asn Asn Lys Thr Ala His Ile Thr Val Asp Pro Lys Thr Phe Glu Val
530 535 540

Phe Val Asp Gly Lys Leu Cys Thr Ser Lys Pro Ala Ser Glu Val Pro
545 550 555 560

Leu Ala Gln Arg Tyr Thr Phe Phe
565

<210> 13
<211> 2452
<212> DNA
<213> Helicobacter felis

<220>
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<222> (48)..(728)

<220>
<221> CDS
<222> (739)..(2445)

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Val Lys Leu

aca ccc aaa gag caa gaa aag ttc ttg tta tat tat gcg ggc gaa gtg 104
Thr Pro Lys Glu Gln Glu Lys Phe Leu Leu Tyr Tyr Ala Gly Glu Val
5 10 15

gct aga aag cgc aaa gca gag ggc tta aag ctc aac caa ccc gaa gcc 152
Ala Arg Lys Arg Lys Ala Glu Gly Leu Lys Leu Asn Gln Pro Glu Ala
20 25 30 35

att gcc tac att agt gcc cat att atg gac gag gcg cgt cgt ggc aaa 200
Ile Ala Tyr Ile Ser Ala His Ile Met Asp Glu Ala Arg Arg Gly Lys
40 45 50

aaa acc gtt gcg gaa ctt atg gaa gag tgt atg cac ttt ttg aaa aaa 248
Lys Thr Val Ala Glu Leu Met Glu Glu Cys Met His Phe Leu Lys Lys
55 60 65

gac gag gtg atg ccc ggg gtg ggg aat atg gtc cct gat ttg ggc gtg 296
Asp Glu Val Met Pro Gly Val Gly Asn Met Val Pro Asp Leu Gly Val
70 75 80

gaa gcc act ttc ccc gat ggc acc aaa ctc gta act gtg aat tgg ccc 344
Glu Ala Thr Phe Pro Asp Gly Thr Lys Leu Val Thr Val Asn Trp Pro
85 90 95

atc gaa cct gat gaa cac ttt aag gcg ggt gaa gtg aaa ttt ggc tgt 392
Ile Glu Pro Asp Glu His Phe Lys Ala Gly Glu Val Lys Phe Gly Cys
100 105 110 115

gat aaa gac att gaa ctc aac gca ggt aag gaa gtt acc gaa cta gaa 440
Asp Lys Asp Ile Glu Leu Asn Ala Gly Lys Glu Val Thr Glu Leu Glu
120 125 130

gtt act aac gaa gga cct aaa tcc ttg cat gtg ggt agc cat ttc cac 488
Val Thr Asn Glu Gly Pro Lys Ser Leu His Val Gly Ser His Phe His
135 140 145

ttc ttt gaa gcc aac aaa gca ttg aaa ttc gat cggt gaa aaa gcc tat 536
Phe Phe Glu Ala Asn Lys Ala Leu Lys Phe Asp Arg Glu Lys Ala Tyr

150 155 160

ggc aaa cgc cta gat att ccc tct ggc aac aca cta cgc att ggg gca 584
Gly Lys Arg Leu Asp Ile Pro Ser Gly Asn Thr Leu Arg Ile Gly Ala

165 170 175

gga caa acc cgt aaa gtg cag tta atc cct ctt ggc ggt agt aaa aaa 632
Gly Gln Thr Arg Lys Val Gln Leu Ile Pro Leu Gly Gly Ser Lys Lys

180 185 190 195

gtg att ggc atg aac ggg ctt gtg aat aat att gcg gac gaa cgc cat 680
Val Ile Gly Met Asn Gly Leu Val Asn Asn Ile Ala Asp Glu Arg His

200 205 210

aaa cac aaa gcg cta gac aaa gca aaa tct cac gga ttt atc aag taa 728
Lys His Lys Ala Leu Asp Lys Ala Lys Ser His Gly Phe Ile Lys

215 220 225

ggagactccc atg aaa atg aaa aaa caa gag tat gta aat acc tac gga 777
Met Lys Met Lys Lys Gln Glu Tyr Val Asn Thr Tyr Gly

230 235 240

ccc acc aca ggc gat aaa gtg cgc tta gga gat acc gat ctt tgg gca 825
Pro Thr Thr Gly Asp Lys Val Arg Leu Gly Asp Thr Asp Leu Trp Ala

245 250 255

gaa gta gaa cat gac tat acc acc tat ggc gaa gaa ctc aaa ttc ggt 873
Glu Val Glu His Asp Tyr Thr Tyr Gly Glu Glu Leu Lys Phe Gly

260 265 270

gca ggt aaa act atc cgt gag ggt atg ggt cag agc aat agc cca gat 921
Ala Gly Lys Thr Ile Arg Glu Gly Met Gly Gln Ser Asn Ser Pro Asp

275 280 285

gaa aac acc tta gat tta gtg atc acc aac gcg atg att att gac tac 969
Glu Asn Thr Leu Asp Leu Val Ile Thr Asn Ala Met Ile Ile Asp Tyr

290 295 300

acc ggg att tac aaa gcc gac att ggc att aaa aat ggc aaa atc cat 1017
 Thr Gly Ile Tyr Lys Ala Asp Ile Gly Ile Lys Asn Gly Lys Ile His
 305 310 315 320

ggc att ggc aag gca gga aac aag gac atg caa gat ggc gta agc cct 1065
 Gly Ile Gly Lys Ala Gly Asn Lys Asp Met Gln Asp Gly Val Ser Pro
 325 330 335

cat atg gtc gtg ggt gtg ggc aca gaa gca cta gca ggg gaa ggt atg 1113
 His Met Val Val Gly Val Gly Thr Glu Ala Leu Ala Gly Glu Gly Met
 340 345 350

att att acc gct ggg ggg atc gat tca cac acc cac ttc ctc tct cca 1161
 Ile Ile Thr Ala Gly Gly Ile Asp Ser His Thr His Phe Leu Ser Pro
 355 360 365

caa caa ttc cct acc gct cta gcc aat ggc gtt aca aca atg ttt ggc 1209
 Gln Gln Phe Pro Thr Ala Leu Ala Asn Gly Val Thr Thr Met Phe Gly
 370 375 380

ggt ggc aca ggc ccc gta gat ggc acg aat gcg act acc atc act ccg 1257
 Gly Gly Thr Gly Pro Val Asp Gly Thr Asn Ala Thr Thr Ile Thr Pro
 385 390 395 400

ggc aaa tgg aac ttg cac cgc atg ttg cgc gca gca gaa gag tat tct 1305
 Gly Lys Trp Asn Leu His Arg Met Leu Arg Ala Ala Glu Glu Tyr Ser
 405 410 415

atg aat gtg ggc ttt ttg ggc aaa ggc aat agc tct agt aaa aaa caa 1353
 Met Asn Val Gly Phe Leu Gly Lys Gly Asn Ser Ser Ser Lys Lys Gln
 420 425 430

ctt gta gaa caa gta gaa gcg ggc gcg att ggt ttt aaa ttg cat gaa 1401
 Leu Val Glu Gln Val Glu Ala Gly Ala Ile Gly Phe Lys Leu His Glu
 435 440 445

gac tgg ggc aca act cca agt gcg atc gat cac tgc ttg agc gta gca 1449
 Asp Trp Gly Thr Thr Pro Ser Ala Ile Asp His Cys Leu Ser Val Ala

450 455 460
gat gaa tac gat gtg caa gtt tgt ata cac acc gat acg gtc aat gag 1497
Asp Glu Tyr Asp Val Gln Val Cys Ile His Thr Asp Thr Val Asn Glu
465 470 475 480

gca ggt tat gta gat gac acc cta aat gca atg aac ggg cgc gcc atc 1545
Ala Gly Tyr Val Asp Asp Thr Leu Asn Ala Met Asn Gly Arg Ala Ile
485 490 495

cat gcc tac cac att gag gga gcg ggt gga gga cac tca cct gat gtt 1593
His Ala Tyr His Ile Glu Gly Ala Gly Gly His Ser Pro Asp Val
500 505 510

atc acc atg gca ggc gaa gtg aat att cta ccc tcc tcc aca acc cct 1641
Ile Thr Met Ala Gly Glu Val Asn Ile Leu Pro Ser Ser Thr Thr Pro
515 520 525

act atc ccc tat acc att aat acg gtt gca gaa cac tta gac atg ctt 1689
Thr Ile Pro Tyr Thr Ile Asn Thr Val Ala Glu His Leu Asp Met Leu
530 535 540

atg acc tgc cac cac cta gat aaa cgc atc cgc gag gat ctccaa ttt 1737
Met Thr Cys His His Leu Asp Lys Arg Ile Arg Glu Asp Leu Gln Phe
545 550 555 560

tct caa agc cgt atc cgc ccc ggc tct atc gcc gct gaa gat gtg ctc 1785
Ser Gln Ser Arg Ile Arg Pro Gly Ser Ile Ala Ala Glu Asp Val Leu
565 570 575

cat gat atc ggt gtg atc gcg atg aca agt tcc gat tcg caa gca atg 1833
His Asp Ile Gly Val Ile Ala Met Thr Ser Ser Asp Ser Gln Ala Met
580 585 590

ggg cgc gct ggg gaa gtg att cct aga act tgg caa act gca gac aag 1881
Gly Arg Ala Gly Glu Val Ile Pro Arg Thr Trp Gln Thr Ala Asp Lys
595 600 605

aat	aaa	aaa	gaa	ttt	ggt	aag	ctt	cct	gaa	gat	ggt	gca	gat	aat	gac	1929
Asn	Lys	Lys	Glu	Phe	Gly	Lys	Leu	Pro	Glu	Asp	Gly	Ala	Asp	Asn	Asp	
610				615						620						
aac	ttc	cgc	atc	aaa	cgc	tat	atc	tcc	aaa	tac	acc	att	aat	ccc	gct	1977
Asn	Phe	Arg	Ile	Lys	Arg	Tyr	Ile	Ser	Lys	Tyr	Thr	Ile	Asn	Pro	Ala	
625				630					635				640			
ttg	acc	cat	ggc	gtg	agc	gag	tat	atc	ggc	tct	gtg	gaa	gag	ggc	aag	2025
Leu	Thr	His	Gly	Val	Ser	Glu	Tyr	Ile	Gly	Ser	Val	Glu	Glu	Gly	Lys	
				645				650					655			
atc	gcc	gac	ttg	gtg	gtg	tgg	aat	cct	gcc	ttt	ttt	ggc	gta	aaa	ccc	2073
Ile	Ala	Asp	Leu	Val	Val	Trp	Asn	Pro	Ala	Phe	Phe	Gly	Val	Lys	Pro	
				660				665					670			
aaa	atc	gtg	atc	aaa	ggc	ggt	atg	gtg	gtg	ttc	tct	gaa	atg	ggc	gat	2121
Lys	Ile	Val	Ile	Lys	Gly	Gly	Met	Val	Val	Phe	Ser	Glu	Met	Gly	Asp	
				675				680				685				
tct	aat	gcg	tct	gtg	ccc	act	cct	cag	ccg	gtt	tat	tac	cgc	gaa	atg	2169
Ser	Asn	Ala	Ser	Val	Pro	Thr	Pro	Gln	Pro	Val	Tyr	Tyr	Arg	Glu	Met	
				690				695				700				
ttt	ggg	cat	cac	ggc	aag	gcg	aaa	ttt	gac	acc	agc	atc	act	ttt	gtt	2217
Phe	Gly	His	His	Gly	Lys	Ala	Lys	Phe	Asp	Thr	Ser	Ile	Thr	Phe	Val	
				705				710			715		720			
tcc	aaa	gtc	gcc	tat	gaa	aat	ggt	gtg	aaa	gaa	aaa	cta	ggt	tta	gag	2265
Ser	Lys	Val	Ala	Tyr	Glu	Asn	Gly	Val	Lys	Glu	Lys	Leu	Gly	Leu	Glu	
				725				730					735			
cgc	aag	gtg	ctc	ccc	gtg	aaa	aac	tgc	cgt	aac	atc	acc	aag	aag	gac	2313
Arg	Lys	Val	Leu	Pro	Val	Lys	Asn	Cys	Arg	Asn	Ile	Thr	Lys	Lys	Asp	
				740				745					750			
ttc	aag	ttc	aac	gac	aaa	act	gca	aaa	atc	acc	gtc	gat	ccg	aaa	acc	2361
Phe	Lys	Phe	Asn	Asp	Lys	Thr	Ala	Lys	Ile	Thr	Val	Asp	Pro	Lys	Thr	

755 760 765

ttc gag gtc ttt gta gat ggc aaa ctc tgc acc tct aaa ccc acc tct 2409
Phe Glu Val Phe Val Asp Gly Lys Leu Cys Thr Ser Lys Pro Thr Ser
770 775 780

gaa gtg cct cta gcc caa cgc tac act ttc ttc tag gcataat 2452
Glu Val Pro Leu Ala Gln Arg Tyr Thr Phe Phe
785 790 795

<210> 14
<211> 226
<212> PRT
<213> Helicobacter felis

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Val Lys Leu Thr Pro Lys Glu Gln Glu Lys Phe Leu Leu Tyr Tyr Ala
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Gly Glu Val Ala Arg Lys Arg Lys Ala Glu Gly Leu Lys Leu Asn Gln
20 25 30

Pro Glu Ala Ile Ala Tyr Ile Ser Ala His Ile Met Asp Glu Ala Arg
35 40 45

Arg Gly Lys Lys Thr Val Ala Glu Leu Met Glu Glu Cys Met His Phe
50 55 60

Leu Lys Lys Asp Glu Val Met Pro Gly Val Gly Asn Met Val Pro Asp
65 70 75 80

Leu Gly Val Glu Ala Thr Phe Pro Asp Gly Thr Lys Leu Val Thr Val
85 90 95

Asn Trp Pro Ile Glu Pro Asp Glu His Phe Lys Ala Gly Glu Val Lys
100 105 110

Phe Gly Cys Asp Lys Asp Ile Glu Leu Asn Ala Gly Lys Glu Val Thr
115 120 125

Glu Leu Glu Val Thr Asn Glu Gly Pro Lys Ser Leu His Val Gly Ser
130 135 140

His Phe His Phe Phe Glu Ala Asn Lys Ala Leu Lys Phe Asp Arg Glu
145 150 155 160

Lys Ala Tyr Gly Lys Arg Leu Asp Ile Pro Ser Gly Asn Thr Leu Arg
165 170 175

Ile Gly Ala Gly Gln Thr Arg Lys Val Gln Leu Ile Pro Leu Gly Gly
180 185 190

Ser Lys Lys Val Ile Gly Met Asn Gly Leu Val Asn Asn Ile Ala Asp
195 200 205

Glu Arg His Lys His Lys Ala Leu Asp Lys Ala Lys Ser His Gly Phe
210 215 220

Ile Lys

225

<210> 15

<211> 568

<212> PRT

<213> Helicobacter felis

<400> 15

Met Lys Met Lys Lys Gln Glu Tyr Val Asn Thr Tyr Gly Pro Thr Thr
1 5 10 15

Gly Asp Lys Val Arg Leu Gly Asp Thr Asp Leu Trp Ala Glu Val Glu
20 25 30

His Asp Tyr Thr Thr Tyr Gly Glu Glu Leu Lys Phe Gly Ala Gly Lys

35	40	45
Thr Ile Arg Glu Gly Met Gly Gln Ser Asn Ser Pro Asp Glu Asn Thr		
50	55	60
Leu Asp Leu Val Ile Thr Asn Ala Met Ile Ile Asp Tyr Thr Gly Ile		
65	70	75
Tyr Lys Ala Asp Ile Gly Ile Lys Asn Gly Lys Ile His Gly Ile Gly		
85	90	95
Lys Ala Gly Asn Lys Asp Met Gln Asp Gly Val Ser Pro His Met Val		
100	105	110
Val Gly Val Gly Thr Glu Ala Leu Ala Gly Glu Gly Met Ile Ile Thr		
115	120	125
Ala Gly Gly Ile Asp Ser His Thr His Phe Leu Ser Pro Gln Gln Phe		
130	135	140
Pro Thr Ala Leu Ala Asn Gly Val Thr Thr Met Phe Gly Gly Thr		
145	150	155
Gly Pro Val Asp Gly Thr Asn Ala Thr Thr Ile Thr Pro Gly Lys Trp		
165	170	175
Asn Leu His Arg Met Leu Arg Ala Ala Glu Glu Tyr Ser Met Asn Val		
180	185	190
Gly Phe Leu Gly Lys Gly Asn Ser Ser Ser Lys Lys Gln Leu Val Glu		
195	200	205
Gln Val Glu Ala Gly Ala Ile Gly Phe Lys Leu His Glu Asp Trp Gly		
210	215	220
Thr Thr Pro Ser Ala Ile Asp His Cys Leu Ser Val Ala Asp Glu Tyr		
225	230	235
		240

Asp Val Gln Val Cys Ile His Thr Asp Thr Val Asn Glu Ala Gly Tyr
245 250 255

Val Asp Asp Thr Leu Asn Ala Met Asn Gly Arg Ala Ile His Ala Tyr
260 265 270

His Ile Glu Gly Ala Gly Gly His Ser Pro Asp Val Ile Thr Met
275 280 285

Ala Gly Glu Val Asn Ile Leu Pro Ser Ser Thr Thr Pro Thr Ile Pro
290 295 300

Tyr Thr Ile Asn Thr Val Ala Glu His Leu Asp Met Leu Met Thr Cys
305 310 315 320

His His Leu Asp Lys Arg Ile Arg Glu Asp Leu Gln Phe Ser Gln Ser
325 330 335

Arg Ile Arg Pro Gly Ser Ile Ala Ala Glu Asp Val Leu His Asp Ile
340 345 350

Gly Val Ile Ala Met Thr Ser Ser Asp Ser Gln Ala Met Gly Arg Ala
355 360 365

Gly Glu Val Ile Pro Arg Thr Trp Gln Thr Ala Asp Lys Asn Lys Lys
370 375 380

Glu Phe Gly Lys Leu Pro Glu Asp Gly Ala Asp Asn Asp Asn Phe Arg
385 390 395 400

Ile Lys Arg Tyr Ile Ser Lys Tyr Thr Ile Asn Pro Ala Leu Thr His
405 410 415

Gly Val Ser Glu Tyr Ile Gly Ser Val Glu Glu Gly Lys Ile Ala Asp
420 425 430

Leu Val Val Trp Asn Pro Ala Phe Phe Gly Val Lys Pro Lys Ile Val
435 440 445

Ile Lys Gly Gly Met Val Val Phe Ser Glu Met Gly Asp Ser Asn Ala
450 455 460

Ser Val Pro Thr Pro Gln Pro Val Tyr Tyr Arg Glu Met Phe Gly His
465 470 475 480

His Gly Lys Ala Lys Phe Asp Thr Ser Ile Thr Phe Val Ser Lys Val
485 490 495

Ala Tyr Glu Asn Gly Val Lys Glu Lys Leu Gly Leu Glu Arg Lys Val
500 505 510

Leu Pro Val Lys Asn Cys Arg Asn Ile Thr Lys Lys Asp Phe Lys Phe
515 520 525

Asn Asp Lys Thr Ala Lys Ile Thr Val Asp Pro Lys Thr Phe Glu Val
530 535 540

Phe Val Asp Gly Lys Leu Cys Thr Ser Lys Pro Thr Ser Glu Val Pro
545 550 555 560

Leu Ala Gln Arg Tyr Thr Phe Phe
565

<210> 16
<211> 21
<212> DNA
<213> Helicobacter felis

<400> 16
catgcacttt ttgaaaaaaag a 21

<210> 17
<211> 16

<212> DNA
<213> Helicobacter felis

<400> 17
tatggtggtc ttctct

16

<210> 18
<211> 32
<212> DNA
<213> Helicobacter felis

<400> 18
ggagtaacat atgaaaactca cacccaaaga gc

32

<210> 19
<211> 27
<212> DNA
<213> Helicobacter felis

<400> 19
cacacccacg accatgtgag ggcttac

27

<210> 20
<211> 27
<212> DNA
<213> Helicobacter felis

<400> 20
gtaaggccctc acatggtcgt gggtgtg

27

<210> 21
<211> 34
<212> DNA
<213> Helicobacter felis

<400> 21

cgaattcgg a tcctagaaga aagtgttagcg ctgg

34